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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,198	09/11/2003	Keiji Shioda	00658D/LH	9433
1933	7590	07/21/2006	EXAMINER	
FRISHAUF, HOLTZ, GOODMAN & CHICK, PC			NGUYEN, THONG Q	
220 Fifth Avenue			ART UNIT	
16TH Floor			PAPER NUMBER	
NEW YORK, NY 10001-7708			2872	

DATE MAILED: 07/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/662,198

Applicant(s)

SHIODA ET AL.

Examiner

Thong Q. Nguyen

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9, 21 and 22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 21-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/21/2006 has been entered.

### ***Response to Amendment***

2. The present Office action is made in response to the amendment filed on 6/21/2006. It is noted that in the amendment, applicant has amended claim 1 and added two new claims, i.e., claims 21-22, into the application. The pending claims are claims 1-9 and 21-22 and these claims are examined in this Office action. Note that claims 10-20 were canceled by applicant in the amendment of

### ***Claim Rejections - 35 USC § 103***

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1-7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morita (Japanese reference No. 10-333047 A, of record) in view of Fantone et al (U.S. Patent No. 4,786,154, of record).

Morita discloses an operating microscope comprising an image projecting optical system for producing images derived from an endoscope optical system which is

provided separate from the operating microscope, into an eyepiece optical system of the operating microscope so that the operating microscope image and the endoscope image can be simultaneously observed. Morita also discloses the use of at least one other optical display system for providing other images related to the object which images of the other display system are projected into the field of view of the operating microscope wherein the operating microscope image, the endoscope image and the image provided by the other display system are different from each other.

In particular, in the embodiment described in columns 20-21 and shown in figures 27A-27B, the operating microscope comprises an observation optical system (49) for forming an optical image of an object including an affected region and an observation means (48, 153) for observing the operating microscope image (152) in a field of view of the observational optical system. The first display means comprises an endoscope (37) with a camera, a camera adapter (43), a camera control unit (43) for displaying images of an object in the operation part (51) in a liquid crystal display (148) via an image processing unit (145). The other display systems for observably displaying other images are in the form of a waveform monitor (146) and CT system (147) wherein the images provided by the monitor (146) and/or CT system (147) are projected into the liquid crystal element (148) via the same image processing unit (145). Regarding to the images superimposing on the operating microscope image, in columns 20-21, Morita discloses that the images provided by the endoscope, the waveform monitor and

the CT system are superimposed onto the operating microscope images and the sizes and contents of the operating microscope image (152), the endoscope image (155) and the waveform image (156) or the CT image (157) are different from the others.

Regarding to the feature that whether the second image is displayed is selectable by an operator as recited on the newly-added material on last two lines of claim 1, it is noted that it would have been obvious to one skilled in the art that an operator operates the operating microscope provided by Morita will control the image processing unit to select the number of images/information superimposed with the observing the operating microscope image (152) in a field of view of the observational optical system. In other words, if the operator does not wish to review the images provided by either the endoscope (37) or the images provided by the waveform monitor (146) or the images provided by the computed tomography system (147) then (s)he just control the image processing unit to block or stop the transmission of such a selectively image to the microscope image (152) in the field of view of the observation optical system.

Regarding to the feature related to a computer for controlling the size of the image provided by the endoscope, it is noted that the use of a camera control unit (41) for controlling the image provided by the endoscope (37) to the image processing unit (145) is inherently capable to vary the size of the image dependent upon the magnification of the optical microscope. The support for that conclusion is found in the other embodiments provided by Morita when he

discloses the combination of an operating microscope and an endoscope which image of the endoscope is large in comparison to the operation microscope image (see the embodiment shown in figure 12). The size of the endoscope image as shown in the embodiment of the figure 27A in comparison to the endoscope image as shown in the embodiment of figure 12 is an evidence to show that the size of the endoscope image is able to vary by the operation of the camera control unit (41) and the image processing unit (145).

Regarding to the feature that the second image in the form of a marker image, such feature is also considered as an inherent feature from the images superimposed into the operating microscope image provided by either the waveform monitor (146) or the CT system (147) absent the specific structure of the so-called "marker image" recited in the present claim. For instance, the CT images can include a graph with scales or any medical symbols related to the object to be operated/observed to provide more information related to the object to the observer.

The only feature missing from the system provided by Morita is that he does not clearly disclose the use of two display systems and two optical systems wherein each display system is on the optical axis of the correspond optical system so that the correlation of display positions of the first and second images are maintained as claimed in the newly-added material added to the present claim 1. However, the use of two systems each comprises a display and an optical system wherein the display is arranged on the optical axis of the optical system is

known to one skilled in the art as can be seen in the microscope provided by Fantone et al. In particular, Fantone et al disclose a microscope having an observation system for forming an image of an object and two systems each comprises a display (42) and an optical system (44) wherein the display (42) is arranged on the optical axis of the optical system (44). See column 4 and fig. 2. Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the system provided by Morita by using two systems each comprises a display and its own optical system for the purpose of providing images which images are projected/imposed onto the image in the field of view of the observation system as suggested by Fantone et al for the purpose of correlation of the displayed positions in the image in the field of view of the observation system.

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morita in view of Fantone et al as applied to claim 1 and further in view of Truppe (of record)

The operating microscope comprising an image projecting optical system for producing images derived from an observation optical system of the microscope, an endoscope optical system and two optical display system for providing images related to the object which images can be simultaneously observed as provided by Morita and Fantone et al meet all of the features recited in claim 8 except that it does not clearly state the first image provided by the endoscope includes image indicative of position of the endoscope. However, the use of an endoscope having a position camera attached thereto for providing information

related to the position of the endoscope and for projecting the information onto the visual field of the image provided by the endoscope is disclosed in the art as can be seen in the system provided by Truppe. See columns 5-6. Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the system as provided by Morita and Fantone et al by using an endoscope having a camera with a position sensor as suggested by Truppe for the purpose of providing position data of the endoscope in the visual field of the operator.

6. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morita in view of Fantone et al as applied to claim 1 above, and further in view of Goto et al (U.S. Patent No. 5,883,933).

The operating microscope comprising an image projecting optical system for producing images derived from an observation optical system of the microscope, an endoscope optical system and two optical display system for providing images related to the object which images can be simultaneously observed as provided by Morita and Fantone et al meet all of the features recited in claim 22 except that it does not clearly state the second image provided by the computed tomography system (147) is a three-dimensional image. However, it is known to one skilled in the art that a three-dimensional configuration a computed tomographic image is able to build on the basis of arrangement/stack of slices of computed tomographic images. An example of an apparatus for forming and displaying a three-dimensional image from computed tomographic images is



provided by Goto et al. See columns 1-2. Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the combined product provided by Morita and Fantone et al by using a computed tomography system for providing three-dimensional images as suggested by Goto et al for the purpose of displaying the three-dimensional images onto the field of view of the observation system.

7. Claims 1-7, 9 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morita (Japanese reference No. 10-333047 A, of record) in view of Tsumanuma et al (U.S. Patent No. 5,742,429, of record).

Morita discloses an operating microscope comprising an image projecting optical system for producing images derived from an endoscope optical system which is provided separate from the operating microscope, into an eyepiece optical system of the operating microscope so that the operating microscope image and the endoscope image can be simultaneously observed. Morita also discloses the use of at least one other optical display system for providing other images related to the object which images of the other display system are projected into the field of view of the operating microscope wherein the operating microscope image, the endoscope image and the image provided by the other display system are different from each other.

In particular, in the embodiment described in columns 20-21 and shown in figures 27A-27B, the operating microscope comprises an observation optical system (49) for forming an optical image of an object including an affected region and an

observation means (48, 153) for observing the operating microscope image (152) in a field of view of the observational optical system. The first display means comprises an endoscope (37) with a camera, a camera adapter (43), a camera control unit (43) for displaying images of an object in the operation part (51) in a liquid crystal display (148) via an image processing unit (145). The other display systems for observably displaying other images are in the form of a waveform monitor (146) and CT system (147) wherein the images provided by the monitor (146) and/or CT system (147) are projected into the liquid crystal element (148) via the same image processing unit (145). Regarding to the images superimposing on the operating microscope image, in columns 20-21, Morita discloses that the images provided by the endoscope, the waveform monitor and the CT system are superimposed onto the operating microscope images and the sizes and contents of the operating microscope image (152), the endoscope image (155) and the waveform image (156) or the CT image (157) are different from the others.

Regarding to the feature that whether the second image is displayed is selectable by an operator as recited on the newly-added material on last two lines of claim 1, it is noted that it would have been obvious to one skilled in the art that an operator operates the operating microscope provided by Morita will control the image processing unit to select the number of images/information superimposed with the observing the operating microscope image (152) in a field of view of the observational optical system. In other words, if the operator does

not wish to review the images provided by either the endoscope (37) or the images provided by the waveform monitor (146) or the images provided by the computed tomography system (147) then (s)he just control the image processing unit to block or stop the transmission of such a selectively image to the microscope image (152) in the field of view of the observation optical system. Regarding to the feature related to a computer for controlling the size of the image provided by the endoscope, it is noted that the use of a camera control unit (41) for controlling the image provided by the endoscope (37) to the image processing unit (145) is inherently capable to vary the size of the image dependent upon the magnification of the optical microscope. The support for that conclusion is found in the other embodiments provided by Morita when he discloses the combination of an operating microscope and an endoscope which image of the endoscope is large in comparison to the operation microscope image (see the embodiment shown in figure 12). The size of the endoscope image as shown in the embodiment of the figure 27A in comparison to the endoscope image as shown in the embodiment of figure 12 is an evidence to show that the size of the endoscope image is able to vary by the operation of the camera control unit (41) and the image processing unit (145).

Regarding to the feature that the second image in the form of a marker image, such feature is also considered as an inherent feature from the images superimposed into the operating microscope image provided by either the waveform monitor (146) or the CT system (147) absent the specific structure of

the so-called "marker image" recited in the present claim. For instance, the CT images can include a graph with scales or any medical symbols related to the object to be operated/observed to provide more information related to the object to the observer.

The only feature missing from the system provided by Morita is that he does not clearly disclose the use of two display systems and two optical systems wherein each display system is on the optical axis of the correspond optical system so that the correlation of display positions of the first and second images are maintained as claimed in the newly-added material added to the present claim 1. However, the use of two systems each comprises an optical apparatus for transmitting light from a particular area of an object and an optical system for superimposing the image of the object into a field of view of an user using an observation system wherein the optical apparatus is arranged on the optical axis of the optical system is known to one skilled in the art as can be seen in the microscope provided by Tsumanuma et al. In particular, Tsumanuma et al disclose a microscope having an observation system (12) for forming an image of an object and two systems each comprises an optical apparatus (17r or 17l) and an optical system ((18, 14a, 15r) or (18, 14a, 15l)) wherein the optical apparatus is arranged on the optical axis of the optical system. See columns 6-7 and fig. 3. Regarding to the feature related to the third optical system includes a movable mirror as recited in newly-added claim 21, such a feature is not critical to the invention because the specification has disclosed that the third optical system

comprises a projection optical system which is not movable. The feature related to the third optical system in the form of a projection optical system is indeed claimed as can be seen in the present claim 5. Further, it is noted that the mirrors (15r or 15l) are able to rotate to either allow the light from the apparatus to be feed into the field of view or to block/prevent the image provided by the optical apparatus from enter onto the field of view. See column 6, lines 26+. Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the system provided by Morita by using two systems each comprises an optical apparatus and its own optical system for the purpose of providing images which images are projected/imposed onto the image in the field of view of the observation system as suggested by Tsumanuma et al for the purpose of correlation of the displayed positions in the image in the field of view of the observation system.

8. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morita in view of Tsumanuma et al as applied to claim 1 and further in view of Truppe (of record)

The operating microscope comprising an image projecting optical system for producing images derived from an observation optical system of the microscope, an endoscope optical system and two optical display system for providing images related to the object which images can be simultaneously observed as provided by Morita and Fantone et al meet all of the features recited in claim 8 except that it does not clearly state the first image provided by the endoscope includes image indicative of position of the endoscope. However, the use of an

endoscope having a position camera attached thereto for providing information related to the position of the endoscope and for projecting the information onto the visual field of the image provided by the endoscope is disclosed in the art as can be seen in the system provided by Truppe. See columns 5-6. Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the system as provided by Morita and Fantone et al by using an endoscope having a camera with a position sensor as suggested by Truppe for the purpose of providing position data of the endoscope in the visual field of the operator.

9. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morita in view of Tsumanuma et al as applied to claim 1 above, and further in view of Goto et al (U.S. Patent No. 5,883,933).

The operating microscope comprising an image projecting optical system for producing images derived from an observation optical system of the microscope, an endoscope optical system and two optical display system for providing images related to the object which images can be simultaneously observed as provided by Morita and Tsumanuma et al meet all of the features recited in claim 22 except that it does not clearly state the second image provided by the computed tomography system (147) is a three-dimensional image. However, it is known to one skilled in the art that a three-dimensional configuration a computed tomographic image is able to build on the basis of arrangement/stack of slices of computed tomographic images. An example of an apparatus for forming and

displaying a three-dimensional image from computed tomographic images is provided by Goto et al. See columns 1-2. Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the combined product provided by Morita and Tsumanuma et al by using a computed tomography system for providing three-dimensional images as suggested by Goto et al for the purpose of displaying the three-dimensional images onto the field of view of the observation system.

***Response to Arguments***

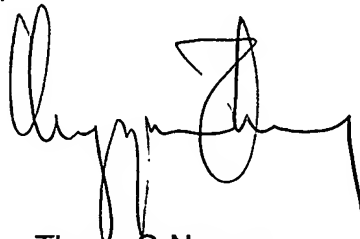
10. Applicant's arguments with respect to claims 1-9 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thong Q. Nguyen whose telephone number is (571) 272-2316. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew A. Dunn can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Thong Q. Nguyen', with a stylized flourish at the end.

Thong Q Nguyen  
Primary Examiner  
Art Unit 2872

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